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SEQUENCE LISTING

<110> The Walter and Eliza Hall Institute of Medical Research

<120> Pancreatic islet cell growth factors

<130> 2379014/EJH

<150> US 60/183573

<151> 2000-02-18

<160> 30

<170> PatentIn version 3.0

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tta tgc caa gtc ctg cta gga ggc gcg agc cat gct agt ttg ata cct 96
Leu Cys Gln Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro
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gag acc ggg aag aaa aaa gtc gcc gag att cag ggc cac gcg gga gga 144
Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
35 40 45

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cgc	cgc	tca	ggg	cag	agc	cat	gag	ctc	ctg	cgg	gac	ttc	gag	gcg	aca	192
Arg	Arg	Ser	Gly	Gln	Ser	His	Glu	Leu	Leu	Arg	Asp	Phe	Glu	Ala	Thr	
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ctt	cta	cag	atg	ttt	ggg	ctg	cgc	cgc	cgt	ccg	cag	cct	agc	aag	agc	240
Leu	Leu	Gln	Met	Phe	Gly	Leu	Arg	Arg	Arg	Pro	Gln	Pro	Ser	Lys	Ser	
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gcc	gtc	att	ccg	gat	tac	atg	agg	gat	ctt	tac	cgg	ctc	cag	tct	ggg	288
Ala	Val	Ile	Pro	Asp	Tyr	Met	Arg	Asp	Leu	Tyr	Arg	Leu	Gln	Ser	Gly	
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gag	gag	gag	gag	gaa	gag	cag	agc	cag	gga	acc	ggg	ctt	gag	tac	ccg	336
Glu	Glu	Glu	Glu	Glu	Glu	Gln	Ser	Gln	Gly	Thr	Gly	Leu	Glu	Tyr	Pro	
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gag	cgt	ccc	gcc	agc	cga	gcc	aac	act	gtg	agg	agt	ttc	cat	cac	gaa	384
Glu	Arg	Pro	Ala	Ser	Arg	Ala	Asn	Thr	Val	Arg	Ser	Phe	His	His	Glu	
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gaa	cat	ctg	gag	aac	atc	cca	ggg	acc	agt	gag	agc	tct	gct	ttt	cgt	432
Glu	His	Leu	Glu	Asn	Ile	Pro	Gly	Thr	Ser	Glu	Ser	Ser	Ala	Phe	Arg	
	130					135					140					
ttc	ctc	ttc	aac	ctc	agc	agc	atc	cca	gaa	aat	gag	gtg	atc	tcc	tcg	480
Phe	Leu	Phe	Asn	Leu	Ser	Ser	Ile	Pro	Glu	Asn	Glu	Val	Ile	Ser	Ser	
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Ala	Glu	Leu	Arg	Leu	Phe	Arg	Glu	Gln	Val	Asp	Gln	Gly	Pro	Asp	Trp	
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Glu	Gln	Gly	Phe	His	Arg	Ile	Asn	Ile	Xaa	Glu	Val	Met	Lys	Pro	Pro	
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gca gtc ctt cgc tgg acc cgg gaa aag caa ccc aat tat ggg ctg gcc	720
Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala	
225	230 235 240
att gag gtg act cac ctc cac cag aca cgg acc cac cag ggc cag cat	768
Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His	
245	250 255
gtc aga atc agc cga tcg tta cct caa ggg agt gga gat tgg gcc caa	816
Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln	
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Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr	
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Glu Tyr Met Pro Met Glu Thr Arg Arg Lys Lys Asn Lys Asn Cys Arg	
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cgc cat tca cta tac gtg gac ttc agt gac gtg ggc tgg aat gat tgg	1008
Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp Trp	
325	330 335
att gtg gcc cca ccc ggc tac cag gcc ttc tac tgc cat ggg gac tgt	1056
Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly Asp Cys	
340	345 350

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 Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Ile Val
 355 360 365

cag acc cta gtc aac tct gtt aat tct agt atc cct aag gcc tgt tgt 1152
 Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile Pro Lys Ala Cys Cys
 370 375 380

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 Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Tyr
 385 390 395 400

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Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
 35 40 45

Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr
 50 55 60

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Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser
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Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly
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Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu
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Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg
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Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser
145 150 155 160

Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp
165 170 175

Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro
180 185 190

Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg
195 200 205

Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro
210 215 220

Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala
225 230 235 240

Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His
245 250 255

Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln

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260 265 270
 Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr
 275 280 285
 Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys Thr Arg Gln Glu Glu
 290 295 300
 Glu Tyr Met Pro Met Glu Thr Arg Arg Lys Lys Asn Lys Asn Cys Arg
 305 310 315 320
 Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp Trp
 325 330 335
 Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly Asp Cys
 340 345 350
 Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Ile Val
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 Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile Pro Lys Ala Cys Cys
 370 375 380
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 Leu Cys Gln Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro
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Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
35 40 45

cgc cgc tca ggg cag agc cat gag ctc ctg cgg gac ttc gag gcg aca 192
Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr
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ctt cta cag atg ttt ggg ctg cgc cgc cgt ccg cag cct agc aag agc 240
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Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly
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Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro
100 105 110

gag cgt ccc gcc agc cga gcc aac act gtg agg agt ttc cat cac gaa 384
Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu
115 120 125

gaa cat ctg gag aac atc cca ggg acc agt gag agc tct gct ttt cgt 432

1. The first part of the report, "Introduction", discusses the importance of the study and the objectives of the research. It also mentions the scope of the study and the limitations of the research.

- 8 -

Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg
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Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser
145 150 155 160

gca gag ctc cgg ctc ttt cgg gag cag gtg gac cag ggc cct gac tgg 528
Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp
165 170 175

gaa cag ggc ttc cac cgt ata aac att yat gag gtt atg aag ccc cca 576
Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro
180 185 190

gca gaa atg gtt cct gga cac ctc atc aca cga cta ctg gac acc aga 624
Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg
195 200 205

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225 230 235 240

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Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His
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gtc aga atc agc cga tcg tta cct caa ggg agt gga gat tgg gcc caa 816
Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln
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Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr
275 280 285

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 Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile
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25

30

Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly

35

40

45

Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr

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55

60

Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser

65

70

75

80

Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly

85

90

95

Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro

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105

110

Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu

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120

125

Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg

130

135

140

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Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro
 180 185 190

Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg
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Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro
 210 215 220

Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala
 225 230 235 240

Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His
 245 250 255

Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln
 260 265 270

Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr
 275 280 285

Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys Thr Arg Gln Glu Glu
 290 295 300

Glu Tyr Met Pro Met Glu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg
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Gly Ser Gly Ser Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys
 325 330 335

Lys Lys His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp
 340 345 350

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Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile
 370 375 380

Val Gln Thr Leu Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro
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Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp
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Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly	
35 40 45	
cgc cgc tca ggg cag agc cat gag ctc ctg cgg gac ttc gag gcg aca	192
Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr	
50 55 60	
ctt cta cag atg ttt ggg ctg cgc cgc cgt ccg cag cct agc aag agc	240
Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser	
65 70 75 80	
gcc gtc att ccg gat tac atg agg gat ctt tac cgg ctc cag tct ggg	288
Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly	
85 90 95	
gag gag gag gag gaa gag cag agc cag gga acc ggg ctt gag tac ccg	336
Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro	
100 105 110	
gag cgt ccc gcc agc cga gcc aac act gtg agg agt ttc cat cac gaa	384
Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu	
115 120 125	
gaa cat ctg gag aac atc cca ggg acc agt gag agc tct gct ttt cgt	432
Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg	
130 135 140	
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Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser	
145 150 155 160	
gca gag ctc cgg ctc ttt cgg gag cag gtg gac cag ggc cct gac tgg	528
Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp	
165 170 175	
gaa cag ggc ttc cac cgt ata aac att yat gag gtt atg aag ccc cca	576
Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro	
180 185 190	

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gca gaa atg gtt cct gga cac ctc atc aca cga cta ctg gac acc aga	624
Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg	
195 200 205	
cta gtc cat cac aat gtg aca cgg tgg gaa act ttc gat gtg agc cct	672
Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro	
210 215 220	
gca gtc ctt cgc tgg acc cgg gaa aag caa ccc aat tat ggg ctg gcc	720
Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala	
225 230 235 240	
att gag gtg act cac ctc cac cag aca cgg acc cac cag ggc cag cat	768
Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His	
245 250 255	
gtc aga atc agc cga tcg tta cct caa ggg agt gga gat tgg gcc caa	816
Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln	
260 265 270	
ctc cgg ccc ctc ctg gtc act ttt ggc cat gat ggc cgg ggc cat acc	864
Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr	
275 280 285	
ttg acc cgc agg agg gcc aaa cgt agt ccc aag cat cac cca cag cgg	912
Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys His His Pro Gln Arg	
290 295 300	
tcc acg cgc cag gag cag aag ctt atc tcg gag gag gac ctg acg cgt	960
Ser Thr Arg Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg	
305 310 315 320	
agg aag aag aat aag aac tgc cgt cgc cat tca cta tac gtg gac ttc	1008
Arg Lys Lys Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe	
325 330 335	
agt gac gtg ggc tgg aat gat tgg att gtg gcc cca ccc ggc tac cag	1056

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Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln
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gcc ttc tac tgc cat ggg gac tgt ccc ttt cca ctg gct gat cac ctc 1104
 Ala Phe Tyr Cys His Gly Asp Cys Pro Phe Pro Leu Ala Asp His Leu
 355 360 365

aac tca acc aac cat gcc att gtg cag acc cta gtc aac tct gtt aat 1152
 Asn Ser Thr Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn
 370 375 380

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 Ser Ser Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile
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Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
 35 40 45

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Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr
50 55 60

Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser
65 70 75 80

Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly
85 90 95

Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro
100 105 110

Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu
115 120 125

Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg
130 135 140

Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser
145 150 155 160

Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp
165 170 175

Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro
180 185 190

Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg
195 200 205

Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro
210 215 220

Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala
225 230 235 240

Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His
245 250 255

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Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln
 260 265 270

Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr
 275 280 285

Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys His His Pro Gln Arg
 290 295 300

Ser Thr Arg Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg
 305 310 315 320

Arg Lys Lys Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe
 325 330 335

Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln
 340 345 350

Ala Phe Tyr Cys His Gly Asp Cys Pro Phe Pro Leu Ala Asp His Leu
 355 360 365

Asn Ser Thr Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn
 370 375 380

Ser Ser Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile
 385 390 395 400

Ser Met Leu Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr
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Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
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ctc tgg gcg cct ctg ttc ttg ctg cgc tcc gcc ctg gcc gat ttc agc 96
Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
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ctg gac aac gag gtg cac tcc agc ttc atc cac cgg cgc ctc cgc agc 144
Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
35 40 45

cag gag cgg cgg gag atg cag cgg gag atc ctg tcc atc tta ggg ttg . 192
Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
50 55 60

ccc cat cgc ccg cgc ccg cac ctc cag gga aag cat aat tcg gcg ccc 240
Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65 70 75 80

atg ttc atg ttg gac ctg tac aac gcc atg gcg gtg gag gag agc ggg 288
Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
85 90 95

ccg gac gga cag ggc ttc tcc tac ccc tac aag gcc gtc ttc agt acc 336
Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
100 105 110

cag ggc ccc cct tta gcc agc ctg cag gac agc cac ttc ctc act gac 384
Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
115 120 125

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gcc gac atg gtc atg agc ttc gtc aac cta gtg gaa cat gac aaa gaa	432
Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu	
130 135 140	
ttc ttc cac cct cga tac cac cat cgg gag ttc cgg ttt gat ctt tcc	480
Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser	
145 150 155 160	
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Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr	
165 170 175	
aag gac tac atc cgg gag cga ttt gac aac gag acc ttc cag atc aca	576
Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr	
180 185 190	
gtc tat cag gtg ctc cag gag cac tca ggc agg gag tcg gac ctc ttc	624
Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe	
195 200 205	
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Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val	
210 215 220	
ttt gat atc aca gcc acc agc aac cac tgg gtg gtc aac cct cgg cac	720
Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His	
225 230 235 240	
aac ctg ggc tta cag ctc tct gtg gag acc ctg gat ggg cag agc atc	768
Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile	
245 250 255	
aac ccc aag ttg gca ggc ctg att gga cgg cat gga ccc cag aac aag	816
Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys	
260 265 270	
caa ccc ttc atg gtg gcc ttc ttc aag gcc acg gaa gtc cat ctc cgt	864

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Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg	
275	280 285
agt atc cgg tcc acg ggg ggc acg cgc cag gag gag gaa tac atg ccc	912
Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Glu Glu Tyr Met Pro	
290	295 300
atg gag acg cgt acc cag tcg cag gac gtg tcc cgg ggc tcc ggt tct	960
Met Glu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg Gly Ser Gly Ser	
305	310 315 320
tca gac tac aac ggc agt gag tta aaa aca gct tgc aag aag cat gag	1008
Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys Lys Lys His Glu	
325	330 335
ctc tat gtg agc ttc cag gac ctg gga tgg cag gac tgg atc att gca	1056
Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala	
340	345 350
ccc aaa ggc tac gct gcc aac tac tgt gat gga gag tgt tcc ttc cca	1104
Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys Ser Phe Pro	
355	360 365
ctc aac gca cac atg aat gcc acc aac cac gcc att gta cag acc ttg	1152
Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu	
370	375 380
gtc cac ctt atg aat ccc gag tac gtc ccc aaa cca tgc tgc gca cca	1200
Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys Ala Pro	
385	390 395 400
acc aaa ctg aat gcc atc tcg gtt ctt tac ttc gat gat aac tcc aat	1248
Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn Ser Asn	
405	410 415
gtc atc ttg aaa aag tac agg aat atg gtc gtg aga gct tgt ggt tgc	1296
Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys	
420	425 430

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cat taagttgaag ctggtgtgtg tgtgtgggtg ggggcatggt tctgccttgg a 1350
His

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Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
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Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
35 40 45
Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
50 55 60
Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65 70 75 80
Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
85 90 95
Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
100 105 110
Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
115 120 125
Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
130 135 140

2

Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala
340 345 350

[illegible]

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Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys Ser Phe Pro
 355 360 365

Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu
 370 375 380

Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys Ala Pro
 385 390 395 400

Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn Ser Asn
 405 410 415

Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys
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His

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ctc tgg gcg cct ctg ttc ttg ctg cgc tcc gcc ctg gcc gat ttc agc 96
 Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
 20 25 30

ctg gac aac gag gtg cac tcc agc ttc atc cac cgg cgc ctc cgc agc 144

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Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
 35 40 45

cag gag cgg cgg gag atg cag cgg gag atc ctg tcc atc tta ggg ttg 192
 Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
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 Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
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 Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
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 Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
 100 105 110

cag ggc ccc cct tta gcc agc ctg cag gac agc cac ttc ctc act gac 384
 Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
 115 120 125

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 Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
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 Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser
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 Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr
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 Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr
 180 185 190

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Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe	
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Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val	
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Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His	
225 230 235 240	
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Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile	
245 250 255	
aac ccc aag ttg gca ggc ctg att gga cgg cat gga ccc cag aac aag	816
Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys	
260 265 270	
caa ccc ttc atg gtg gcc ttc ttc aag gcc acg gaa gtc cat ctc cgt	864
Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg	
275 280 285	
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Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Gln Lys Leu Ile Ser	
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gag gag gac ctg acg cgt acc cag tcg cag gac gtg tcc cgg ggc tcc	960
Glu Glu Asp Leu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg Gly Ser	
305 310 315 320	
ggt tct tca gac tac aac ggc agt gag tta aaa aca gct tgc aag aag	1008
Gly Ser Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys Lys Lys	
325 330 335	
cat gag ctc tat gtg agc ttc cag gac ctg gga tgg cag gac tgg atc	1056

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His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp Trp Ile
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 Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys Ser
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 Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile Val Gln
 370 375 380

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 Thr Leu Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys
 385 390 395 400

gca cca acc aaa ctg aat gcc atc tcg gtt ctt tac ttc gat gat aac 1248
 Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn
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 Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys
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Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
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Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65 70 75 80
Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
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Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
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Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
115 120 125
Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
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Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser
145 150 155 160
Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr
165 170 175
Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr
180 185 190
Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe
195 200 205

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Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val
210 215 220

Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His
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Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile
245 250 255

Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys
260 265 270

Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg
275 280 285

Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Gln Lys Leu Ile Ser
290 295 300

Glu Glu Asp Leu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg Gly Ser
305 310 315 320

Gly Ser Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys Lys Lys
325 330 335

His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp Trp Ile
340 345 350

Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys Ser
355 360 365

Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile Val Gln
370 375 380

Thr Leu Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys
385 390 395 400

Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn
405 410 415

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Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys
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 Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
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ctg gac aac gag gtg cac tcc agc ttc atc cac cgg cgc ctc cgc agc 144
 Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
 35 40 45

cag gag cgg cgg gag atg cag cgg gag atc ctg tcc atc tta ggg ttg 192
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Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr				
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Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp				
	115	120	125	
gcc gac atg gtc atg agc ttc gtc aac cta gtg gaa cat gac aaa gaa				432
Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu				
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Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser				
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Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr				
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aag gac tac atc cgg gag cga ttt gac aac gag acc ttc cag atc aca				576
Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr				
	180	185	190	
gtc tat cag gtg ctc cag gag cac tca ggc agg gag tcg gac ctc ttc				624
Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe				
	195	200	205	
ttg ctg gac agc cgc acc atc tgg gct tct gag gag ggc tgg ttg gtg				672
Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val				
	210	215	220	

ttt gat atc aca gcc acc agc aac cac tgg gtg gtc aac cct cgg cac 720
Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His
225 230 235 240

aac ctg ggc tta cag ctc tct gtg gag acc ctg gat ggg cag agc atc 768
Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile
245 250 255

aac ccc aag ttg gca ggc ctg att gga cgg cat gga ccc cag aac aag 816
Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys
260 265 270

caa ccc ttc atg gtg gcc ttc ttc aag gcc acg gaa gtc cat ctc cgt 864
Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg
275 280 285

agt atc cgg tcc acg ggg ggc acg cgc cag gag gag gaa tac atg ccc 912
 Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Glu Glu Tyr Met Pro
 290 295 300

atg gag acg cgt cca aag aac caa gag gcc ctg agg atg gcc agt gtg 960
Met Glu Thr Arg Pro Lys Asn Gln Glu Ala Leu Arg Met Ala Ser Val
305 310 315 320

gca gaa aac agc agc agt gac cag agg cag gcc tgc aag aaa cat gag 1008
Ala Glu Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys His Glu
325 330 335

ctg tac gtc agc ttc cga gac ctt ggc tgg cag gac tgg atc att gca 1056
Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala
340 345 350

cct gaa ggc tat gct gcc tac tac tgt gag gga gag tgc gcc ttc cct 1104
Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro
355 360 365

ctg aac tcc tac atg aac gcc acc aac cac gcc atc gtc cag aca ctg 1152
Leu Asn Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu

370

375

380

ggt cac ttc atc aac cca gac aca gta ccc aag ccc tgc tgt gcg ccc 1200
Val His Phe Ile Asn Pro Asp Thr Val Pro Lys Pro Cys Cys Ala Pro
385 390 395 400

acc cag ctc aac gcc atc tct gtc ctc tac ttc gac gac agc tct aat 1248
Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn
405 410 415

gtc atc ctg aag aag tac aga aac atg gtg gtc cgg gcc tgt ggc tgc 1296
Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys
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cac tagctcttcc tgagaccctg acctttgcgg ggccacacct ttccaaa 1346
His

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<212>	PRT
<213>	mouse

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Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
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Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
35 40 45

Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
50 55 60

Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65 70 75 80

NAME	AGE	ADDRESS	CITY	STATE	ZIP	PHONE	TELETYPE	TELEFAX
ALAN	45	12345	NEW YORK	NY	10001	212-555-1234		
BETTY	32	67890	LOS ANGELES	CA	90001	213-555-6789		
CHARLIE	58	11111	CHICAGO	IL	60601	312-555-1111		
DAN	41	22222	HOUSTON	TX	77001	713-555-2222		
EVE	39	33333	PHOENIX	AZ	85001	602-555-3333		
FRANK	52	44444	ATLANTA	GA	30301	404-555-4444		
GRACE	47	55555	PORTLAND	OR	97201	503-555-5555		
HELEN	35	66666	SEATTLE	WA	98101	206-555-6666		
IRVING	55	77777	DENVER	CO	80201	303-555-7777		
JANE	43	88888	BOSTON	MA	02101	617-555-8888		
KEN	37	99999	MINNEAPOLIS	MN	55401	612-555-9999		
LUCAS	50	10101	ST. LOUIS	MO	63101	314-555-1010		
MARY	40	20202	INDIANAPOLIS	IN	46201	317-555-2020		
NED	53	30303	COLUMBIA	SC	29201	803-555-3030		
OLIVIA	36	40404	MEMPHIS	TN	38101	901-555-4040		
PETER	48	50505	OKLAHOMA CITY	OK	73101	405-555-5050		
QUINN	42	60606	SPRINGFIELD	IL	62701	217-555-6060		
RALPH	56	70707	DES MOINES	IA	50301	515-555-7070		
SARAH	34	80808	ALBUQUERQUE	NM	87101	505-555-8080		
TOM	44	90909	SAN ANTONIO	TX	78201	214-555-9090		
URSULA	38	10010	EL PASO	TX	79901	915-555-1001		
VICTOR	51	20020	IRVING	TX	75001	972-555-2002		
WILLIAM	46	30030	AMERSTADT	TX	75001	972-555-3003		
XENIA	31	40040	PLANO	TX	75001	972-555-4004		
YOUNG	54	50050	GRAND PRairie	TX	75001	972-555-5005		
ZOE	33	60060	MEADOW CREEK	TX	75001	972-555-6006		

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Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
85 90 95

Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
100 105 110

Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
115 120 125

Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
130 135 140

Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser
145 150 155 160

Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr
165 170 175

Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr
180 185 190

Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe
195 200 205

Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val
210 215 220

Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His
225 230 235 240

Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile
245 250 255

Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys
260 265 270

Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg

- 34 -

275 280 285
 Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Glu Glu Tyr Met Pro
 290 295 300
 Met Glu Thr Arg Pro Lys Asn Gln Glu Ala Leu Arg Met Ala Ser Val
 305 310 315 320
 Ala Glu Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys His Glu
 325 330 335
 Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala
 340 345 350
 Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro
 355 360 365
 Leu Asn Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu
 370 375 380
 Val His Phe Ile Asn Pro Asp Thr Val Pro Lys Pro Cys Cys Ala Pro
 385 390 395 400
 Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn
 405 410 415
 Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys
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His

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Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala

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ctc tgg gcg cct ctg ttc ttg ctg cgc tcc gcc ctg gcc gat ttc agc 96

Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser

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ctg gac aac gag gtg cac tcc agc ttc atc cac cgg cgc ctc cgc agc 144

Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser

35 40 45

cag gag cgg cgg gag atg cag cgg gag atc ctg tcc atc tta ggg ttg 192

Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu

50 55 60

ccc cat cgc ccg cgc ccg cac ctc cag gga aag cat aat tcg gcg ccc 240

Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro

65 70 75 80

atg ttc atg ttg gac ctg tac aac gcc atg gcg gtg gag gag agc ggg 288

Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly

85 90 95

ccg gac gga cag ggc ttc tcc tac ccc tac aag gcc gtc ttc agt acc 336

Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr

100 105 110

cag ggc ccc cct tta gcc agc ctg cag gac agc cac ttc ctc act gac 384

Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp

115 120 125

gcc gac atg gtc atg agc ttc gtc aac cta gtg gaa cat gac aaa gaa 432

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Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu	
130 135 140	
ttc ttc cac cct cga tac cac cat cgg gag ttc cgg ttt gat ctt tcc	480
Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser	
145 150 155 160	
aag atc ccc gag ggc gaa cgg gtg acc gca gcc gaa ttc agg atc tat	528
Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr	
165 170 175	
aag gac tac atc cgg gag cga ttt gac aac gag acc ttc cag atc aca	576
Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr	
180 185 190	
gtc tat cag gtg ctc cag gag cac tca ggc agg gag tcg gac ctc ttc	624
Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe	
195 200 205	
ttg ctg gac agc cgc acc atc tgg gct tct gag gag ggc tgg ttg gtg	672
Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val	
210 215 220	
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Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His	
225 230 235 240	
aac ctg ggc tta cag ctc tct gtg gag acc ctg gat ggg cag agc atc	768
Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile	
245 250 255	
aac ccc aag ttg gca ggc ctg att gga cgg cat gga ccc cag aac aag	816
Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys	
260 265 270	
caa ccc ttc atg gtg gcc ttc ttc aag gcc acg gaa gtc cat ctc cgt	864
Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg	
275 280 285	

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agt atc cgg tcc acg ggg ggc acg cgc cag gag cag aag ctt atc tcg 912
 Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Gln Lys Leu Ile Ser
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gag gag gac ctg acg cgt cca aag aac caa gag gcc ctg agg atg gcc 960
 Glu Glu Asp Leu Thr Arg Pro Lys Asn Gln Glu Ala Leu Arg Met Ala
 305 310 315 320

agt gtg gca gaa aac agc agc agt gac cag agg cag gcc tgc aag aaa 1008
 Ser Val Ala Glu Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys
 325 330 335

cat gag ctg tac gtc agc ttc cga gac ctt ggc tgg cag gac tgg atc 1056
 His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile
 340 345 350

att gca cct gaa ggc tat gct gcc tac tac tgt gag gga gag tgc gcc 1104
 Ile Ala Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala
 355 360 365

ttc cct ctg aac tcc tac atg aac gcc acc aac cac gcc atc gtc cag 1152
 Phe Pro Leu Asn Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln
 370 375 380

aca ctg gtt cac ttc atc aac cca gac aca gta ccc aag ccc tgc tgt 1200
 Thr Leu Val His Phe Ile Asn Pro Asp Thr Val Pro Lys Pro Cys Cys
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 Ala Pro Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser
 405 410 415

tct aat gtc atc ctg aag aag tac aga aac atg gtg gtc cgg gcc tgt 1296
 Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys
 420 425 430

ggc tgc cac tagctcttcc tgagaccctg acctttgcgg ggccacacct ttccaaa 1352

160

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Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr
165 170 175

Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr
180 185 190

Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe
195 200 205

Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val
210 215 220

Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His
225 230 235 240

Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile
245 250 255

Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys
260 265 270

Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg
275 280 285

Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Gln Lys Leu Ile Ser
290 295 300

Glu Glu Asp Leu Thr Arg Pro Lys Asn Gln Glu Ala Leu Arg Met Ala
305 310 315 320

Ser Val Ala Glu Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys
325 330 335

His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile
340 345 350

Ile Ala Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala

- 40 -

355

360

365

Phe Pro Leu Asn Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln

370

375

380

Thr Leu Val His Phe Ile Asn Pro Asp Thr Val Pro Lys Pro Cys Cys

385

390

395

400

Ala Pro Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser

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Gly Cys His

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